WHAT IS CLAIMED IS:

1. An optical pickup apparatus having an irradiation optical system for condensing a light beam into a spot on a track on a recording plane of an optical recording medium and a photodetection optical system for guiding return light reflected back from said spot to a photodetector, said optical pickup apparatus detecting the focal error of said light beam, said optical pickup apparatus comprising:

a holographic lens provided in the optical path of said return light in said photodetection optical system for outputting 0-th order diffracted light and ±1st order diffracted light based on said return light;

an optical element provided in one of two positions, a first position in front of and a second position behind said holographic lens in the optical path of said return light in said photodetection optical system for providing astigmatism

a photodetector for receiving the 0-th order diffracted light output from said holographic lens;

a photodetector for receiving the ±1st order diffracted light output from said holographic lens;

a servo-signal generating operation circuit for the 0-th order diffracted light connected to said photodetector for the 0-th order diffracted light for generating a first focus error signal having a first capture range based on the output signal of the photodetector; and

a servo-signal generating operation circuit for the

±1st order diffracted light connected to the photodetector for said ±1st order diffracted light for generating a second focus error signal having a second capture range different from said first capture range based on the output signal of the photodetector.

2. The optical pickup apparatus according to claim 1, wherein said holographic lens is set so that said 0-th order diffracted light has a greater quantity of light than said ±1st order diffracted light.

3. The optical pickup apparatus according to claim 1, wherein said 0-th order diffracted light photodetector includes four independent light receiving portions provided in the vicinity of each other with two orthogonal dividing lines as boundaries, one of the dividing lines being provided parallel to an extending direction of the track, wherein an area of the light receiving portions of positive polarity and an area of the light receiving portions of negative polarity are substantially equal, the light receiving portions of positive polarity and negative polarity being connected to said servo-signal generating operation circuit for the 0-th order diffracted light.

4. The optical pickup apparatus according to claim 1, wherein said optical element to provide the astigmatism is a cylindrical lens being provided in the optical path of

return light so that the central axis of said optical element extends at an angle of 45° with respect to the track extending direction of the optical disc.

5. The optical pickup apparatus according to claim 1, wherein said photodetector for ±1st-order diffracted light includes at least two independent light receiving portions provided in the vicinity of each other with at least two dividing lines extending approximately parallel in a vertical direction to the track extending direction as boundaries,

wherein an area of the light receiving portions of positive polarity and an area of the light receiving portions of negative polarity are substantially equal, the light receiving portions of positive polarity and negative polarity being connected to said servo-signal generating operation circuit for the ±1st-order diffracted light.

6. The optical pickup apparatus according to claim 1, wherein said first capture range is smaller than said second capture range.

7. The optical pickup apparatus according to claim 1, wherein a tracking error signal is generated based on said 0-th order diffracted light.

8. The optical pickup apparatus according to claim 1,

wherein the first focus error signal is generated by an astigmatism method, and the second focus error signal is generated by a differential spot size method.

9. An optical pickup apparatus having an irradiation optical system for condensing a light beam into a spot on a track of a recording layer of an optical recording medium having at least two recording layers stacked upon one another with an intermediate layer therebetween, and a photodetection optical system for guiding return light reflected back from the spot into a photodetector, said optical pickup apparatus detecting the focus error of the light beam, said apparatus comprising:

a focus error signal generation portion for generating a plurality of focus error signals each having a capture range, said capture ranges being different from one another.

10. The optical pickup apparatus according to claim 9, wherein said focus error signal generation portion comprises:

a first focus error signal detection portion for generating a first focus error signal having a first capture range smaller than the smallest of the distances between adjacent recording layers in the optical recording medium; and

a second focus error signal detection portion for

generating a second focus error signal having a second capture range larger than said first capture range.

11. The optical pickup apparatus according to claim 10, wherein said first capture range is at most 1/10 of the smallest of the distances between said adjacent recording layers.

12. The optical pickup apparatus according to claim 10, wherein said second capture range is larger than the sum of the thicknesses of all stacked recording layers and intermediate layers.

13. The optical pickup apparatus according to claim 10, further comprising:

a position detection portion for detecting the relative position of said recording layers in said optical recording medium based on the first focus error signal generated by said first focus error signal detection portion; and

a selection portion for selecting and relaying at least one of said first and second focus error signals from said first and second focus error signal detection portions in response to a signal generated by said position detection portion.

14. The optical pickup apparatus according to claim

10, further comprising,

a focus pull-in portion for performing focus pull-in operation between recording layers most distant from each other among the stacked recording layers in response to the second focus error signal generated by said second focus error signal detection portion, and then performing focus pull-in to a predetermined recording layer in response to the first focus error signal generated by said first focus error signal detection portion.

15. The optical pickup apparatus according to claim 10, further comprising,

a focus pull-in portion for performing focus pull-in operation between recording layers most distant from each other among the stacked recording layers in response to the second focus error signal generated by said second focus error signal detection portion, when focus is pulled-in to a predetermined recording layer according to the first focus error signal generated by said first focus error signal detection portion and the first focus error signal generated by said first focus error signal detection portion is beyond a predetermined value.

16. The optical pickup apparatus according to claim 10, further comprising an offset value portion for adding a predetermined offset value based on the position of a predetermined recording layer to the second focus error

signal generated by said second focus error detection portion when focus is pulled-in to said predetermined recording layer according to the first focus error signal generated by said first focus error signal detection portion.

17. A focus control method for an optical pickup, said optical pickup having an irradiation optical system for condensing a light beam into a spot on a track on a recording layer of an optical recording medium having at least two recording layers placed on one another with an intermediate layer therebetween; and a photodetection optical system for guiding return light reflected back from said spot to a photodetector, said optical pickup detecting a focus error of said light beam, said focus control method comprising the steps of:

a first focus error signal detection step of generating a first focus error signal having a first capture range smaller than the smallest distance between adjacent recording layers of the optical recording medium; and

a second focus error signal detection step of generating a second focus error signal having a second capture range larger than said first capture range.

18. The focus control method according to claim 17, wherein said second capture range is larger than the sum of

the thicknesses of all stacked recording layers and intermediate layers.

19. The focus control method according to claim 17, further comprising the steps of:

a position detection step for detecting the relative position of said recording layers in said optical recording medium based on the first focus error signal generated in the first focus error signal detection step; and

a selection step for selecting and relaying at least one of said first and second focus error signals generated in the first and second focus error signal detection steps in response to a signal generated in the position detection step.

20. The focus control method according to claim 17, further comprising,

a focus pull-in step for performing focus pull-in operation between recording layers most distant from each other among the stacked recording layers in response to the second focus error signal generated in the second focus error signal detection step, and then performing focus pull-in to a predetermined recording layer in response to the first focus error signal generated in the first focus error signal detection step.

21. The focus control method according to claim 17,

further comprising,

a focus pull-in step for performing focus pull-in operation between recording layers most distant from each other among the stacked recording layers in response to the second focus error signal generated in the second focus error signal detection step, when focus is pulled-in to a predetermined recording layer according to the first focus error signal generated in the first focus error signal detection step and the first focus error signal generated in the first focus error signal detection step is beyond a predetermined value.

22. The focus control method according to claim 17, further comprising an offset value adding step for adding a predetermined offset value based on the position of a predetermined recording layer to the second focus error signal generated in the second focus error detection step when focus is pulled-in to said predetermined recording layer according to the first focus error signal generated in the first focus error signal detection step.